

CLAIMS:

1. A method of applying an electrochemical influence to a component of a machine, in situ, the method comprising:
 - connecting the component, while in situ, into an electrolysis system so that the
 - 5 component functions as at least one electrode of the system;
 - applying an electrolyte to the component; and
 - causing current flow through the electrolyte to effect electrochemical cleaning of the component in situ.
- 10 2. The method of claim 1 which includes causing the component to act as one of a cathode of the system, an anode of the system and as both a cathode and an anode of the system.
3. The method of claim 2 which includes using a switching device in the system to
- 15 cause the component to switch between functioning as the cathode and as the anode of the system.
4. The method of any one of the preceding claims which includes selecting the electrolyte from the group comprising phosphoric acid and sodium hydroxide.
- 20 5. The method of any one of the preceding claims which includes limiting the current flow through the electrolyte by varying a voltage applied to the system.
6. The method of any one of the preceding claims which includes circulating the
- 25 electrolyte through the system.
7. A method of cleaning a bank of spaced metal objects which comprises
 - while the objects are in situ, making one of the objects function as a cathode of an electrolysis system and making another of the objects function as an anode of the electrolysis system;
 - applying an electrolyte to the objects; and
 - applying a voltage between the object acting as the cathode and the object acting as the anode.

8. The method of claim 7 which includes periodically switching the objects to cause the object that had been functioning as the cathode to function as the anode and vice versa.
9. The method of claim 7 or claim 8 which includes using a switching device in the system to switch the objects between functioning as the cathode and as the anode of the system.
- 5 10. The method of any one of claims 7 to 9 which includes selecting the electrolyte from the group comprising phosphoric acid and sodium hydroxide.
11. The method of any one of claims 7 to 10 which includes limiting the current flow through the electrolyte by varying a voltage applied to the system.
- 10 12. The method of any one of claims 7 to 11 which includes circulating the electrolyte through the system.
13. The method of any one of claims 7 to 12 in which the objects are plates of a heat exchanger and in which the method includes causing a plurality of the plates to function as the cathode and a further, different plurality of the plates to function as the anode.
14. The method of claim 13 which includes selecting each alternate plate as a cathode with the remaining alternate plates functioning as the anode of the system.
15. Electrochemical cleaning apparatus which comprises
a power source;
a connecting arrangement connected to the power source, the connecting arrangement providing for the connection of a component of machinery to be cleaned, while the component is in situ, to the power source to enable the component to function as at least one electrode of an electrolysis system; and
a reservoir for an electrolyte, the reservoir being coupled, in use, to a part of the machinery to apply the electrolyte to the component.

16. The apparatus of claim 15 in which the component is configured to act as one of a cathode of the system, an anode of the system and as both a cathode and an anode of the system.
- 5 17. The apparatus of claim 16 which includes a switching device to cause the component to switch between functioning as the cathode and as the anode of the system.
18. The apparatus of any one of claims 15 to 17 in which the electrolyte is selected
10 from the group comprising phosphoric acid and sodium hydroxide.
19. The apparatus of any one claims 15 to 18 in which the power source comprises a variable voltage source for controlling current flow through the electrolyte.
- 15 20. The apparatus of any one of claims 15 to 19 which includes a circulating means for circulating the electrolyte through the system.
21. An electrochemical cleaning assembly for cleaning a bank of spaced metal objects, the assembly comprising
electrochemical cleaning apparatus as claimed in any one of claims 15 to 20;
and
a plurality of the objects connected to the connecting arrangement of the apparatus while the objects are in situ, so that at least one of the objects functions as a cathode of an electrolysis system so formed and at least one other of the objects functions as an anode of the electrolysis system.
22. The assembly of claim 21, insofar as it is dependent on claim 17, in which the switching device periodically switches the objects to cause the object that had been functioning as the cathode to function as the anode and vice versa.
23. The assembly of claim 21 or claim 22 in which the objects are plates of a heat exchanger and a plurality of the plates function as the cathode and a further, different plurality of the plates function as the anode.
24. The assembly of claim 23 in which each alternate plate functions as a cathode with the remaining alternate plates functioning as the anode of the system.